



California Regional Water Quality Control Board

San Francisco Bay Region



Arnold Schwarzenegger
Governor

Terry Tamminen
Secretary for
Environmental
Protection

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SEP 21 2004

File No. 2119.1227 (RS)

Certified Mail No. 70032260000212593918

Mr. Thomas Butt
East Brother Light Station, Inc.
117 Park Place
Richmond, CA 94801

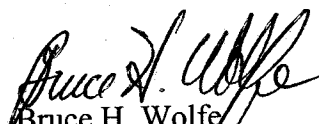
NOTICE: Transmittal of Final Order No. R2-2004-0079, NPDES Permit No. CA0038806
for East Brother Light Station, Inc., Contra Costa County

Dear Mr. Butt:

Attached is a copy of the Final Order No. R2-2004-0079 adopted by the Water Board on
September 15, 2004. The requirements of this Order are effective starting on December 1, 2004.

You may contact Robert Schlipf at (510) 622-2478 if you have any questions.

Sincerely,


Bruce H. Wolfe
Executive Officer

Attachment: Order No. R2-2004-0079



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

ORDER NO. R2-2004-0079

NPDES PERMIT NO. CA0038806

**WASTE DISCHARGE REQUIREMENTS FOR:
EAST BROTHER LIGHT STATION, INC.
RICHMOND, CONTRA COSTA COUNTY**

FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board, finds that:

1. *Discharger and Permit Application.* East Brother Light Station Inc. (hereinafter called the Discharger) has applied to the Board for issuance of waste discharge requirements and a permit to discharge treated wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

Facility Description

2. East Brother Island is located about two miles north of the Richmond-San Rafael Bridge and about one-quarter mile west of Point San Pablo. It is one of the four small islands flanking the straits between San Francisco Bay and San Pablo Bay. In 1873, East Brother Light Station, which consists of a lighthouse and fog signal, and related facilities, was constructed. The United States Coast Guard owns the island and its facilities, and still operates and maintains a working navigational light and fog signal on the island. For the last 25 years, the United States Coast Guard has leased the island and its buildings at no cost to East Brother Light Station, Inc., a nonprofit organization. East Brother Light Station, Inc. restored the facilities, now maintains them, and operates a number of public access/public interpretation programs.
3. The island is a historic site of significant importance. It is designated as State of California Registered Historic Landmark No. 971, and listed on the National Register of Historic Places. The restoration work of East Brother Light Station, Inc. has received national recognition, including the National Trust for Historic Preservation Honor Award, the U.S. Department of Transportation Award for Outstanding Public Service to Transportation and Historic Preservation, and the California Preservation Foundation Award of Merit.
4. The Discharger has routed wastewater from toilets, bathtubs, showers, and sinks to San Pablo Bay without treatment since 1874. The Report of Waste Discharge (ROWD) indicates that the Discharger uses an average of 1,000 gallons of fresh water per week (fresh water originates as rainwater and is stored in a cistern) for cooking, dishwashing, and showering; and an average of 700 gallons of salt water per week to flush toilets. This correlates to an average daily domestic wastewater production of about 250 gallons per day. However, the Discharger asserts that 250 gallons per day should represent the expected maximum flow to the treatment plant, not the average flow.

Discharge Description

5. The Discharger has designed a treatment system (Latitude 37.9633, Longitude 122.4319) to treat domestic sewage. A 4-inch diameter PVC pipe (using booster pumps, as necessary) will collect waste from toilets, sinks, and showers, and route it by gravity to the treatment system. The system will utilize a septic tank to provide primary treatment and settling in an anaerobic environment, and a sand filter to provide secondary treatment in an aerobic environment. The sand filter will cover about 200 square feet, and be retained by a masonry wall that will initially be concealed by rubble rock, and eventually by native shrubs and vines. From the sand filter, treated wastewater will be routed to an ultraviolet treatment unit for disinfection. Table 1 below indicates the expected quality of final effluent provided in the Discharger's ROWD.

Table 1: Expected Effluent Quality

Constituent	Units	Value
Biochemical Oxygen Demand	mg/L	< 5
Total Suspended Solids	mg/L	< 5
Fecal Coliform	MPN/ 100 mL	~ 400 ¹
NH ₃ -N	mg/L	< 1
NO ₃ -N	mg/L	< 30

¹ The fecal coliform levels in effluent should be much lower than those indicated, as Table 1 does not reflect the Discharger's recent proposal to disinfect treated wastewater with an ultraviolet treatment unit.

6. *Baseline Data:* To determine the effect of the discharge on the receiving water, the Discharger collected total and fecal coliform samples at four locations near the discharge point, and five locations that were within 100 yards of the discharge point on June 23, 1986 at both high and low tide. These results are summarized in the table below:

Table 2: Receiving Water Coliform Levels

Sampling Station	Total Coliform		Fecal Coliform	
	Median	Maximum	Median	Maximum
Close to Discharge	10	230	2	8
Up to 100 yards away	18	50	2	13

While these results show levels of coliform that meet water quality objectives contained in the Basin Plan, the results may not have captured the full effect of the discharge since it is intermittent. To develop more baseline results, the Discharger proposed to collect additional samples in May/June 2004, as part of its Quality Assurance Project Plan (QAPP).

7. *Pollution Prevention.* To address toxic pollutants, the Discharger must develop a pollution prevention plan, as required by Provision E.4. This should include, at a minimum, (a) ensuring that it uses nontoxic chemicals for cleaning, pest, and weed management; and (b) educating employees and visitors to dispose of toxic items and grease properly (i.e., not to the sewer system).
8. The U.S. EPA and the Board have classified this discharge as a minor discharge.

Applicable Plans, Policies and Regulations

9. *Basin Plan* The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board (SWRCB) and the Office of Administrative Law on July 20, 1995 and November 13, 1995, respectively. A summary of the regulatory changes is contained in Title 23 of the California Code of Regulations, Section 3912. The Basin Plan identifies beneficial uses and water quality objectives (WQOs) for waters of the State in the Region, including surface waters and groundwaters. The Basin Plan also identifies discharge prohibitions intended to protect beneficial uses. This Order implements the Board's Basin Plan.

Beneficial Uses

10. Beneficial uses for San Pablo Bay, as identified in the Basin Plan and based on known uses of the receiving water in the vicinity of the discharge, are:
- a. Industrial Service Supply
 - b. Navigation
 - c. Water Contact Recreation

- d. Non-contact Water Recreation
- e. Commercial and Sport Fishing
- f. Wildlife Habitat
- g. Preservation of Rare and Endangered Species
- h. Fish Migration
- i. Fish Spawning
- j. Estuarine Habitat
- k. Shellfish Harvesting

State Implementation Policy (SIP)

11. The SWRCB adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (also known as the State Implementation Policy or SIP) on March 2, 2000 and the Office of Administrative Law (OAL) approved the SIP on April 28, 2000. The SIP applies to discharges of toxic pollutants in the inland surface waters, enclosed bays and estuaries of California subject to regulation under the State's Porter-Cologne Water Quality Control Act (Division 7 of the Water Code) and the federal Clean Water Act. The SIP establishes implementation provisions for priority pollutant criteria promulgated by the U.S. EPA through the National Toxics Rule (NTR) and California Toxics Rule (CTR), and for priority pollutant objectives established by the Regional Water Quality Control Boards (RWQCBs) in their water quality control plans (basin plans). The SIP also establishes monitoring requirements for 2,3,7,8-TCDD equivalents, chronic toxicity control provisions, and Pollutant Minimization Programs.

California Toxics Rule (CTR)

12. On May 18, 2000, the U.S. EPA published the *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (Federal Register, Volume 65, Number 97, 18 May 2000). These standards are generally referred to as the CTR. The CTR specified water quality criteria (WQC) for numerous pollutants.

Basis for Effluent Limitations

General Basis

13. *Federal Water Pollution Control Act.* Effluent limitations and toxic effluent standards are established pursuant to sections 301 through 305, and 307 of the Federal Water Pollution Control Act and amendments thereto and are applicable to the discharge herein.

Technology Based Effluent Limits

14. According to 40 CFR Part 125.3, technology-based limits signify the minimum level of control that a Discharger must attain for conventional pollutants. In this permit, technology-based effluent limits are for biochemical oxygen demand (BOD), total suspended solids (TSS), settleable matter, and oil and grease.
15. *Shallow Water Discharge.* The Basin Plan prohibits the discharge of wastewater that does not receive an initial dilution of at least 10:1, if it has characteristics that have the potential to impact beneficial uses. The Basin Plan allows for an exception to this prohibition if an inordinate burden would be placed on the discharger relative to beneficial uses, and an equivalent level of environmental protection can be achieved by alternative means, such as providing a higher level of treatment and/or improved treatment reliability. In this case, the cost of constructing a deepwater outfall for a discharge of up to 250 gallons/day would place an inordinate burden on the Discharger. Additionally, the proposed system of a septic tank and intermittent sand filter with ultraviolet disinfection provides for passive treatment, which should result in effluent (i.e., conventional parameters such as BOD and TSS) that will be consistently superior in quality to that required by the Basin Plan. For these reasons, this Order does not require that the Discharger install a deepwater outfall.
16. *Total Coliform Organisms Limitation.* For a shallow water discharge, the Basin Plan indicates that total coliform organisms shall not exceed a seven-sample median of 2.2 MPN/100 mL, and a daily maximum of 240 MPN/100 mL, unless it is demonstrated that the discharge will not compromise beneficial uses. In this case, available information does not suggest that there is a potential for the discharge to adversely affect

beneficial uses for this parameter. This is based on the small size of this discharge, and the receiving water samples for total coliform described in Finding No. 6. Therefore, this Order includes total coliform organisms limitations of 23 MPN/100 mL for a five-sample median, and 240 MPN/100 mL for a daily maximum (the alternative limits in the Basin Plan when an exception applies).

Applicable Water Quality Objectives/Criteria

17. The WQO and WQC applicable to the receiving waters for this discharge are from the Basin Plan, the CTR, and the NTR.
- The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide (see also c. below). The narrative toxicity objective states in part “[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms.” The bioaccumulation objective states in part “[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life.” Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on current available information.
 - The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as here, except that where the Basin Plan’s Tables 3-3 and 3-4 specify numeric objectives for certain priority toxic pollutants. The Basin Plan’s numeric objectives apply over the CTR (except in the South Bay, south of the Dumbarton Bridge).
 - The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving waters for this Discharger.

Water Quality-Based Effluent Limitations

18. Toxic substances are regulated by WQBELs derived from water quality objectives listed in the Basin Plan Tables 3-3 and 3-4, the NTR, U.S. EPA recommended criteria, the CTR, the SIP, and/or BPJ. Numeric WQBELs are required for all constituents that have reasonable potential to cause or contribute to an excursion above any State WQO/WQC (have reasonable potential). This Order does not include water quality based effluent limitations for priority pollutants, as these constituents are not expected to be in the discharge at levels that could adversely affect water quality. This is due to the very small size of the discharge, the domestic source of the wastewater, and the pollution prevention requirements contained in this Order.
19. *Permit Reopener.* This Order includes a reopener provision to allow numeric effluent limitations to be added or deleted for any constituent that exhibits or does not exhibit, respectively, reasonable potential. The Board will make this determination based on monitoring results.

Requirement for Monitoring of Pollutants in Effluent

20. *Monitoring Requirements (Self-Monitoring Program).* The SMP includes monitoring at the outfalls for conventional, and non-conventional pollutants. During the start-up of the wastewater treatment plant (the first three months of operation), this Order requires twice/weekly monitoring for TSS, pH, and total coliform organisms, weekly monitoring for BOD and settleable matter, and monthly monitoring for oil and grease. Once the start-up period ends, this Order requires monthly monitoring for TSS, pH, and total coliform organisms, and quarterly monitoring for BOD and settleable matter.

Other Discharge Characteristics and Permit Conditions

21. *NPDES Permit.* This Order serves as an NPDES Permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.
22. *Notification.* The Discharger and interested agencies and persons have been notified of the Board's intent to issue requirements for this discharge and have been provided an opportunity to submit their written views and recommendations. Board staff prepared a Fact Sheet and Response to Comments, which are hereby incorporated by reference as part of this Order.
23. *Public Hearing.* The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the Discharger shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Discharge of treated wastewater at a location or in a manner different from that described in this Order is prohibited.
2. The discharge of average dry weather flows greater than 250 gallons per day, is prohibited. The average dry weather flow shall be determined over three consecutive dry weather months each year.
3. The discharge of non-biodegradable material into the wastewater treatment system is prohibited.
4. The bypass or overflow of untreated or partially treated wastewater to waters of the State, either at the treatment plant or from the collection system, is prohibited.
5. The use of garbage disposals is prohibited.

B. EFFLUENT LIMITATIONS

1. Effluent discharged into San Pablo Bay shall not exceed the following:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
BOD ₅	mg/L	30	45	
TSS	mg/L	30	45	
Oil and Grease	mg/L	10		20
Settleable Matter	mL/L-hr	0.1		0.2

2. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.
3. Total Coliform Organisms: The treated wastewater, at some point in the treatment process prior to discharge, shall meet the following bacteriological limits: The moving median value of most probable number (MPN) of total coliform bacteria in any five (5) consecutive samples shall not exceed 23 MPN/100 mL; and, any single sample shall not exceed 240 MPN/100 mL.
4. 85 Percent Removal, BOD₅ and TSS: The arithmetic mean of the biochemical oxygen demand and total suspended solids values for effluent samples collected each calendar month shall not exceed 15 percent of

the arithmetic mean of the respective values for influent samples collected at approximately the same times during the same period.

C. RECEIVING WATER LIMITATIONS

1. The discharge shall not cause the following conditions to exist in waters of the State at any place:
 - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
 - b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;
 - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
 - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and
 - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.
2. The discharges shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.
3. The discharges shall not cause the following limits to be violated in waters of the State at any one place within one foot of the water surface:
 - a. Dissolved Oxygen: 7.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharges shall not cause further reduction in ambient dissolved oxygen concentrations.
 - b. Dissolved Sulfide: 0.1 mg/L, maximum
 - c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 pH units.
 - d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and
0.16 mg/L as N, maximum.
 - e. Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
4. The discharges shall not cause a violation of any particular water quality standard for receiving waters adopted by the Board or the State Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

D. SLUDGE MANAGEMENT PRACTICES

1. Sludge shall be removed from the septic tank, as needed to ensure optimal plant operation.
2. Treatment and storage of sludge generated at the WWTP shall be confined to the respective WWTP property and conducted in a manner that precludes nuisance conditions (e.g., vectors and objectionable odors), infiltration of waste constituents into soils, and the potential for sludge to be carried and deposited into waters of the State.
3. Residual sludge shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, WWTP, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.
4. Use and disposal of sludge should comply with the self-implementing federal regulations of Title 40, Code of Federal Regulations (CFR), Part 503, which are subject to enforcement by the U.S. EPA, not the Water Board. If during the life of this Order the State accepts primacy for implementation of 40 CFR 503, the Water Board may also initiate enforcement where appropriate.
5. Permanent onsite sludge storage or disposal activities are not authorized by this permit. A ROWD shall be filed and the site brought into compliance with all applicable regulations prior to commencement of any such activity by the Discharger.

E. PROVISIONS**1. Order Compliance**

The Discharger shall comply with all sections of this Order beginning on the effective date of this Order (see Provision E.9)

2. Operations and Maintenance Manual

The Discharger shall prepare an Operations and Maintenance Manual. Review of the manual, and updates as necessary, shall take place annually or within 90 days of completion of any significant facility or process changes. The Discharger shall submit to the Board, **by March 1 of each year**, a letter describing the results of the review process including an estimated time schedule for completion of any revisions determined necessary, and a description or copy of any completed revisions.

3. Contingency Plan Update

- a. The Discharger shall prepare and maintain a Contingency Plan as required by Board Resolution 74-10, and as prudent in accordance with current industrial facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.
- b. The Discharger shall regularly review, and update as necessary, the Contingency Plan in order for the plan to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.
- c. **By March 1 of each year**, the Discharger shall submit to the Board a report describing the current status of its Contingency Plan review and update. This report shall include a description or copy of any completed revisions, or a statement that no changes are needed.

4. Pollution Prevention

To address toxic pollutants, the Discharger must develop a pollution prevention program. This should include, at a minimum, (a) ensuring that it uses nontoxic chemicals for cleaning, pest, and weed management; and (b) educating employees and visitors to dispose of toxic items and grease properly (i.e., not to the sewer system). **Within 60 days of the effective date of this Order**, the Discharger shall submit a report that documents planned and/or completed pollution prevention measures that it has and/or will undertake.

5. Self-Monitoring Program

The Discharger shall comply with the Self-Monitoring Program (SMP) for this Order as adopted by the Board. The SMP may be amended by the Executive Officer pursuant to U.S. EPA regulations 40 CFR 122.62, 122.63, and 124.5.

6. Standard Provisions and Reporting Requirements

The Discharger shall comply with all applicable items of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (attached), or any amendments thereafter. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in 'Standard Provisions', the specifications of this Order shall apply.

7. Change in Control or Ownership

- a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Board.
- b. To assume responsibility of and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see Standard Provisions & Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

8. Order Reopener

The Board may modify or reopen this Order and Permit prior to its expiration date in any of the following circumstances:

- (1) If present or future investigations demonstrate that the discharge(s) governed by this Order and Permit will or have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;
- (2) New or revised WQOs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order and Permit are not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under Federal regulations governing NPDES permit modifications;
- (3) If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on this basis. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

9. NPDES Permit


This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on **December 1, 2004**, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

10. Order Expiration and Reapplication

- a. This Order expires on **November 30, 2009**.
- b. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this permit and waste discharge requirements. The application shall be

accompanied by a summary of conventional pollutant data from the most recent 3 years, and of toxic pollutant data from the most recent 5 years.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 15, 2004.


BRUCE H. WOLFE
Executive Officer

Attachments:

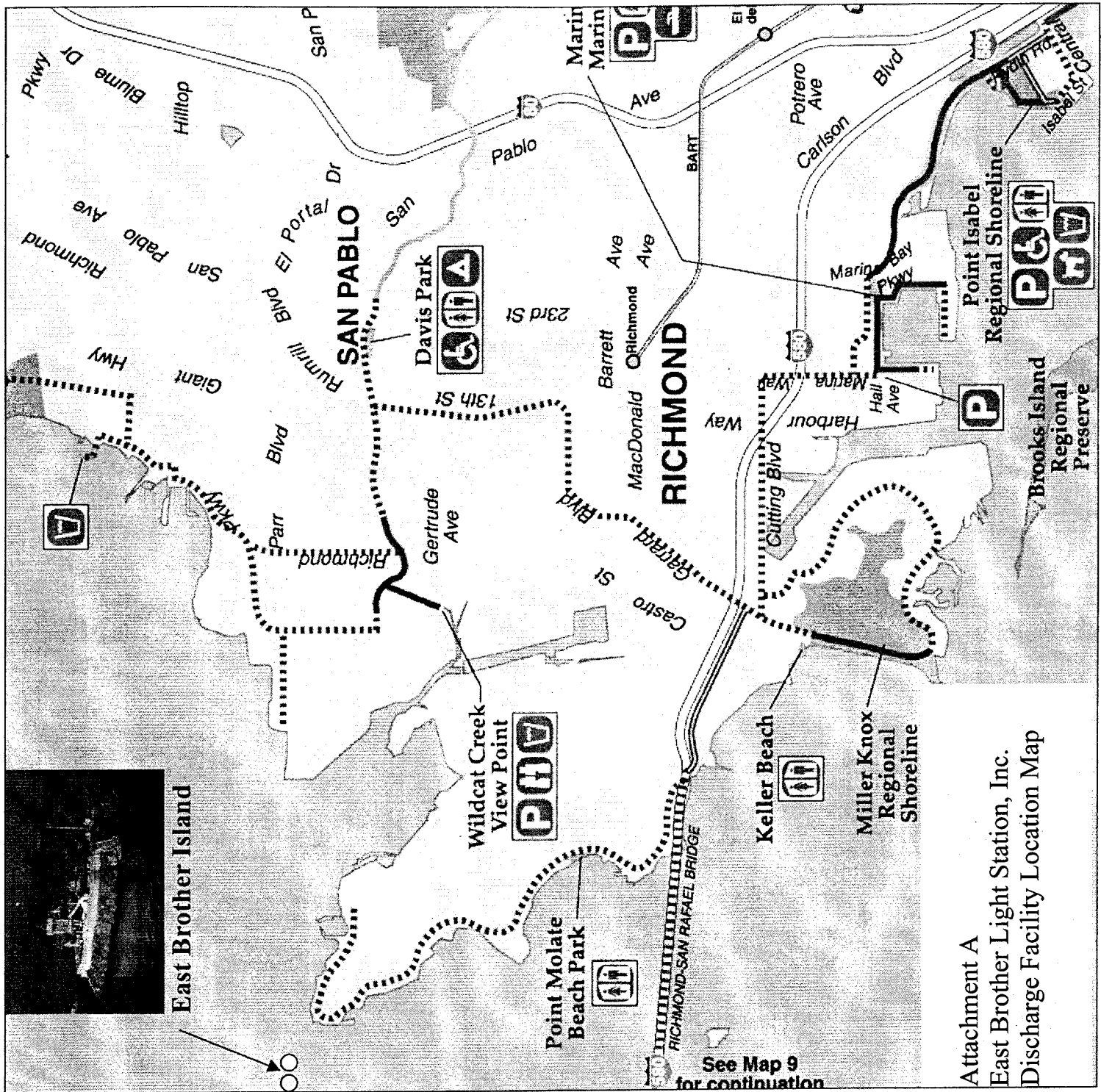
- A. Discharge Facility Location Map
- B. Discharge Facility Treatment Process Diagram
- C. Self-Monitoring Program, Part B
- D. Fact Sheet

The following documents are part of this Order, but are not physically attached due to volume. They are available on the internet at: <http://www.swrcb.ca.gov/rwqcb2/Download.htm>:

- Self-Monitoring Program, Part A
- Standard Provisions and Reporting Requirements, August 1993
- Board Resolution No. 74-10

Attachment A

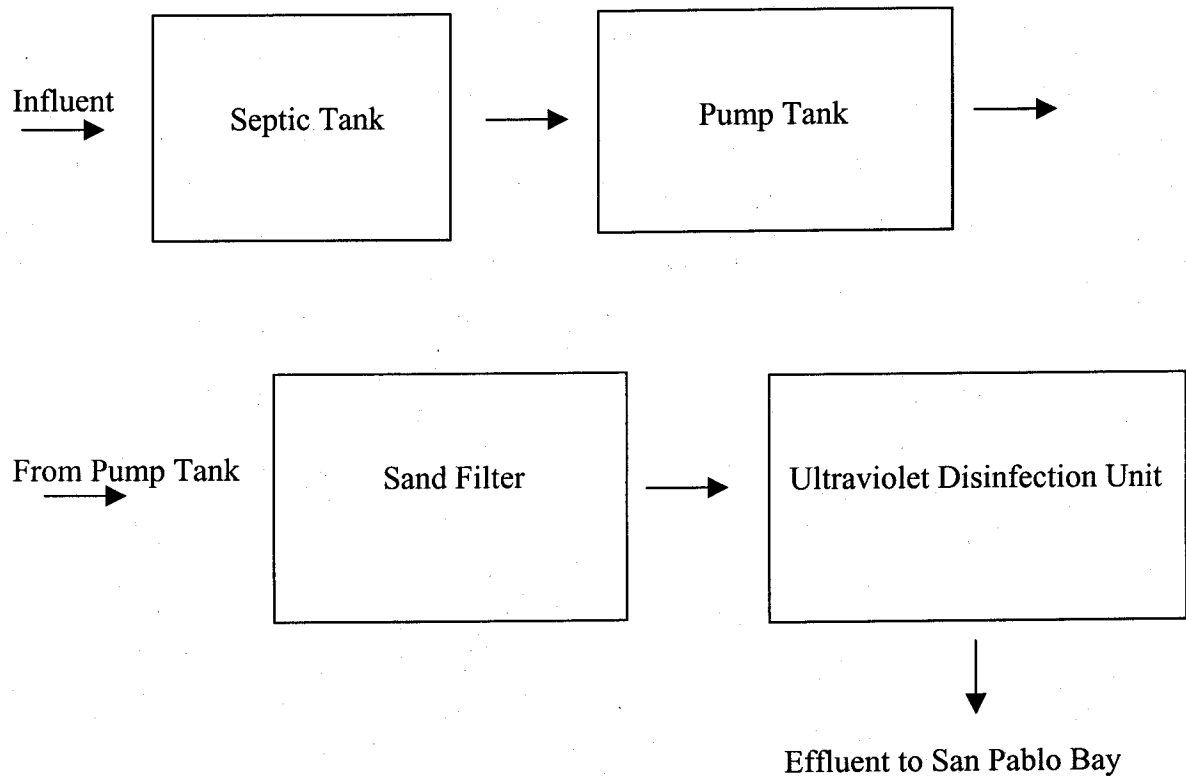
Discharge Facility Location Map



Attachment B

Discharge Facility Treatment Process Diagram

Attachment B
East Brother Light Station, Inc.
Discharge Facility Treatment Process Diagram



Attachment C
Self-Monitoring Program

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

SELF-MONITORING PROGRAM

FOR

**EAST BROTHER LIGHT STATION, INC.
RICHMOND, CONTRA COSTA COUNTY**

NPDES PERMIT NO. CA0038806

ORDER NO. R-2-2004-0079

**Consists of:
Part A (not attached)
Adopted August 1993**

and

**Part B (Attached)
Adopted: September 15, 2004
Effective: December 1, 2004**

Note: Part A (dated August 1993, Standard Provisions and Reporting Requirements for NPDES Surface Water Discharger Permits (dated August 1993), and Resolution No. 74-10 referenced in this Self Monitoring Program are not attached but are available for review or download on the Board's website at www.swrcb.ca.gov/rwqcb2.

SELF-MONITORING PROGRAM – Part B

I. Description of Sampling and Observation Stations

Station

Description

A. INFLUENT

A-001

At any point in the treatment facilities headworks at which all waste tributary to the system is present and preceding any phase of treatment, and exclusive of any return flows or process side-streams.

B. EFFLUENT

E-001

At a point in the outfall from the treatment facilities between the point of discharge and the point at which all waste tributary to that outfall is present (may be the same as E-001).

C. RECEIVING WATERS

C

At a point in San Pablo Bay, located in the vicinity of the outfall discharge point, and accessible from the shoreline.

D. LAND OBSERVATIONS

P-1 through P-‘n’

Located at the corners and midpoints of the perimeter fence line surrounding the treatment facilities. (A sketch showing the locations of these stations shall accompany each report).

E. OVERFLOWS AND BYPASSES

O-1 through O-‘n’

At points in the collection system including manholes, pump stations, or any other location where overflows or bypasses occur.

NOTES :

A map and description of each known overflow or bypass location shall accompany the self monitoring report for each quarter.

II. Schedule of Sampling, Measurements, and Analysis

A. The schedule of sampling, measurements, and analysis shall be that given in Table 1 (below):

TABLE 1
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSES [1]

Sampling Station	A-001	E-001		O	P	C
Type of Sample [2]		Startup [3]	After Startup	Ob	Ob	Ob
Parameter (units) [notes]						
Flow rate (mgd) [4]		W	W			
BOD ₅ (mg/L)	Q	W	Q			
Settleable matter (mL/L-hr)		W	Q			
TSS (mg/L)	M	2/W	M			

East Brother Light Station – NPDES Self-Monitoring Program, Part B

Sampling Station	A-001	E-001		O	P	C
Type of Sample [2]		Startup [3]	After Startup	Ob	Ob	Ob
Parameter (units) [notes]						
Total Coliform (MPN/100 mL)		2/W	M			
pH		2/W	M			
Oil and Grease (mg/L)		M	[5]			
Standard Observations [6]				E	M	Q

LEGEND FOR TABLE 1

Type of Stations:

- A = treatment facility influent
- E = treatment facility effluent
- O = overflow and bypass points
- P = treatment facility perimeter
- C = receiving water

Frequency of Sampling:

- 2/W = two times each week (on separate days)
- W = once each week
- M = once each month
- Q = once each calendar quarter (at least two month intervals)
- E = each occurrence

Types of Samples:

- Ob = observation

FOOTNOTES FOR TABLE 1

- [1] Bypass Monitoring: During any time when bypassing occurs from any treatment process (primary, secondary, disinfection, etc.) in the treatment facilities, the self-monitoring program shall include the following sampling and analyses in addition to the Table I schedule:
 - a. When bypassing occurs from any primary or secondary treatment unit(s), grab samples on an hourly basis for the duration of the bypass event for BOD and TSS analyses, grab samples at least daily for settleable matter and oil and grease analyses; and continuous monitoring of flow.
 - a. When bypassing the disinfection process, grab samples at least daily for total coliform analyses; and continuous monitoring of flow.
- [2] The Discharger shall collect grab samples for all the parameters shown, except for flow, which it shall monitor for continuously.
- [3] Startup refers to the first three months of operation
- [4] Flow Monitoring: Flows shall be measured continuously and recorded at least weekly. The following information shall also be reported quarterly:

Average Daily Flow (mgd)
- [5] If the Discharger does not detect oil and grease in its first three months of operation, the Board will consider waiving monitoring requirements for this constituent.
- [6] Receiving water observations shall include only those contained in Items D.1a, D.1.b, D.1.c, and D.3 of Part A (August 1993) of the Self-Monitoring Program. Perimeter observations shall include only D.5.a (odors) of Part A of the same program.

III. Reporting Requirements

- A. General Reporting Requirements are described in Section E of the Board's *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits*, dated August 1993.
- B. Self-monitoring reports for each calendar quarter shall be submitted quarterly, by the 1st day of the second month after the end of the quarter. The required contents of these reports are described in Section F.4. of Part A.
- C. An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board **by March 1 of each year**. The required contents of the Annual Report are described in Section F.5 of Part A.
- D. Any overflow, bypass, or any significant noncompliance incident that may endanger health or the environment shall be reported in accordance with Sections F.1 and F.2 of Part A. The date, time, duration, location, estimated volume of wastewater discharged, and corrective actions taken for these events shall be reported in quarterly self-monitoring reports.
- E. Any removal of septage from the septic tank and other maintenance activities shall be reported in quarterly self-monitoring reports. The location of septage disposal shall be identified.

IV. Modifications to Part A

- A. If any discrepancies exist between Part A and Part B of the SMP, Part B prevails.
- B. Modify Section F.1 as follows:
 - 1. The second sentence of section F.1 shall be modified as follows: "Spills shall be reported immediately after the occurrence to the Regional Board at 510-622-2300 on weekdays during 8 a.m. to 5 p.m., and to the Office of Emergency Services at 1-800-852-7550 on weekends or when the spill occurred outside these hours."
 - 2. Section F.1.b is revised to read: "Best estimate of volume involved..."
 - 3. Section F.1.d is revised to read: "Cause of spill or overflow..."
 - 4. Section F.1.i is revised to read: "Agencies or persons notified...."

- C. Modify Section F.4 as follows:

Self-Monitoring Reports

For each calendar quarter, a self-monitoring report (SMR) shall be submitted to the Water Board in accordance with the requirements listed in Self-Monitoring Program, Part A. The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the Discharger's operation practices. The report shall be submitted to the Water Board no later than the 1st day of the second month after the end of the quarter.

[And add at the end of Section F.4 the following:]

- g. The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The discharger is currently submitting SMRs electronically in a format approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS). The ERS format includes, but is not

limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the SMP, then the approved ERS requirements supercede.

D. Modification to section F.5 of Part A: Annual Report:

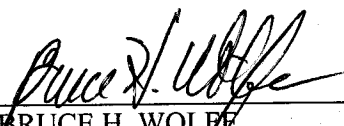
An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by **March 1 of the following year**. This report shall include the following:

1. Both tabular and graphical summaries of monitoring data collected during the calendar year that characterizes treatment plant performance and compliance with waste discharge requirements.
2. A comprehensive discussion of treatment plant performance and compliance with waste discharge requirements. This discussion should include any corrective actions taken or planned such as changes to facility equipment or operation practices which may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment or disposal practices.

V. Self-Monitoring Program Certification

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order No. R-2-2004-0079.
2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer.
3. Is effective as of December 1, 2004.



BRUCE H. WOLFE
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
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OAKLAND, CA 94612
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FACT SHEET

for

NPDES PERMIT and WASTE DISCHARGE REQUIREMENTS for
EAST BROTHER LIGHT STATION, INC.
RICHMOND, CONTRA COSTA COUNTY
NPDES Permit No. CA0038806
ORDER NO. R2-2004-0079

PUBLIC NOTICE:

Written Comments

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments must be submitted to the Regional Board no later than 5:00 p.m. on **August 23, 2004**.
- Send comments to the Attention of Robert Schlipf.

Public Hearing

- The draft permit will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting at: Elihu Harris State Office Building, 1515 Clay Street, Oakland, CA; 1st floor Auditorium.
- This meeting will be held on: **September 15, 2004**, starting at 9:00 am.

Additional Information

- For additional information about this matter, interested persons should contact Regional Board staff member: Mr. Robert Schlipf, Phone: (510) 622-2478; email: rs@rb2.swrcb.ca.gov

This Fact Sheet contains information regarding an application for waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit for East Brother Light Station (Discharger) for domestic wastewater discharges. The Fact Sheet describes the factual, legal, and methodological basis for the proposed permit and provides supporting documentation to explain the rationale and assumptions used in deriving the limits.

I. INTRODUCTION

The Discharger applied to the Board for issuance of waste discharge requirements and a permit to discharge domestic wastewater to waters of the State and the United States under the NPDES. The application and Report of Waste Discharge (ROWD) is dated October 27, 2000.

The Discharger has routed wastewater from toilets, bathtubs, showers, and sinks to San Francisco Bay without treatment since 1874. The ROWD indicates that the Discharger uses an average of 1,000 gallons of fresh water per week (fresh water originates as rainwater and is stored in a cistern) for cooking, dishwashing, and showering; and an average of 700 gallons of salt water per week to flush toilets. This correlates to an average daily domestic wastewater production of about 250 gallons per day. However, the Discharger asserts that 250 gallons per day should represent the expected

maximum flow to the treatment plant, not the average flow. The U.S. EPA and the Board have classified this discharge as a minor discharge. The receiving waters for the subject discharge are the waters of San Pablo Bay. Beneficial uses for San Pablo Bay, as identified in the Basin Plan and based on known uses of the receiving waters near the discharge, are:

- a. Industrial Service Supply
- b. Navigation
- c. Water Contact Recreation
- d. Non-contact Water Recreation
- e. Commercial and Sport Fishing
- f. Wildlife Habitat
- g. Preservation of Rare and Endangered Species
- h. Fish Migration
- i. Fish Spawning
- j. Estuarine Habitat
- k. Shellfish Harvesting

San Pablo Bay is a tidally influenced water body with significant fresh water inflows during the wet weather season.

II. DESCRIPTION OF EFFLUENT

The Discharger has designed a treatment system to treat domestic sewage. A 4-inch diameter PVC pipe (using booster pumps, as necessary) will collect waste from toilets, sinks, and showers, and route it by gravity to the treatment system. The system will utilize a septic tank to provide primary treatment and settling in an anaerobic environment, and a sand filter to provide secondary treatment in an aerobic environment. The sand filter will cover about 200 square feet, and be retained by a masonry wall that will be visually screened by native shrubs and vines. From the sand filter, treated wastewater will be routed to an ultraviolet treatment unit for disinfection. The table below shows the expected quality of final effluent provided in the Discharger's ROWD.

Table 1: Expected Effluent Quality

Constituent	Units	Value
Biochemical Oxygen Demand	mg/L	< 5
Total Suspended Solids	mg/L	< 5
Fecal Coliform	MPN/ 100 mL	~ 400 ¹
NH ₃ -N	mg/L	< 1
NO ₃ -N	mg/L	< 30

¹ The fecal coliform levels in effluent should be much lower than those indicated, as Table 1 does not reflect the Discharger's recent proposal to disinfect treated wastewater with an ultraviolet treatment unit.

III. GENERAL RATIONALE

The following documents are the bases for the requirements contained in the proposed Order, and are referred to under the specific rationale section of this Fact Sheet.

- Federal Water Pollution Control Act, as amended (hereinafter the CWA).

- Federal Code of Regulations, Title 40 - Protection of Environment, Chapter 1, Environmental Protection Agency, Subchapter D, Water Programs, Parts 122-129 (hereinafter referred to as 40 CFR specific part number).
- Water Quality Control Plan, San Francisco Bay Basin, adopted by the Board on June 21, 1995 (hereinafter the **Basin Plan**). The California State Water Resources Control Board (hereinafter the **State Board**) approved the Basin Plan on July 20, 1995 and by California State Office of Administrative Law approved it on November 13, 1995. The Basin Plan defines beneficial uses and contains WQOs for waters of the State, including Suisun Bay.
- California Toxics Rules, Federal Register, Vol. 65, No. 97, May 18, 2000 (hereinafter the **CTR**).
- National Toxics Rules 57 FR 60848, December 22, 1992, as amended (hereinafter the **NTR**).
- State Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, May 1, 2000 (hereinafter the **State Implementation Policy, or SIP**).
- Ambient Water Quality Criteria for Bacteria – 1986, U.S. EPA 440/5-84-002, January 1986.
- U.S. EPA Technical Support Document for Water Quality-Based Toxics Control, EPA/505/2-90-001, March 1991 (hereinafter TSD).

IV. SPECIFIC RATIONALE

Several specific factors affecting the development of limitations and requirements in the proposed Order are discussed as follows:

1. Basis for Prohibitions

- a) Prohibition A.1 (no discharges other than as described in the permit): This prohibition is based on the Basin Plan, and BPJ.
- b) Prohibition A.2 (flow limit): This prohibition is based on the reliable treatment capacity of the plant. Exceedence of the treatment plant's average dry weather flow design capacity may result in lowering the reliability of compliance with water quality requirements, unless the Discharger demonstrates otherwise through an antidegradation study. This prohibition is based on 40 CFR 122.41(l).
- c) Prohibition A.3 (no non-biodegradable material): This prohibition is based on the Basin Plan, and BPJ.
- d) Prohibition A.4 (no bypass or overflow): This prohibition is based on the Basin Plan, and BPJ.
- e) Prohibition A.5 (no use of garbage disposals): This prohibition is based on BPJ. The use of garbage disposals may result in floatable solids that will not be removed in primary treatment. This could create clogging problems when wastewater is pumped from the septic tank to sand filters for further treatment.

2. Basis for Effluent Limitations

- a) Effluent Limitations B.1: These limits are technology-based limits representative of, and intended to ensure, adequate and reliable secondary level wastewater treatment. These limits are based on the Basin Plan (Chapter 4, pg 4-8, and Table 4-2, at pg 4-69).
- b) Effluent Limitation B.2 (pH): This effluent limit is a standard secondary treatment requirement. The limit is based on the Basin Plan (Chapter 4, Table 4-2), which is derived from federal requirements (40 CFR 133.102).
- c) Effluent Limitation B.3 (Total Coliform): The purpose of this effluent limitation is to ensure adequate disinfection of the discharge in order to protect beneficial uses of the receiving waters. Effluent limits are based on water quality objectives for bacteriological parameters for receiving water beneficial uses. Water quality objectives are given in terms of parameters, which serve as surrogates for pathogenic organisms. The traditional parameter for this purpose is coliform bacteria, either as total coliform or as fecal coliform. The Basin Plan's Table 4-2 (pg. 4-69) and its footnotes allow fecal coliform limitations to be substituted for total coliform limitations provided that the Discharger conclusively demonstrates "through a program approved by the Board that such substitution will not result in unacceptable adverse impacts on the beneficial uses of the receiving waters". Until the Discharger undertakes a bacteriological study to conclusively demonstrate that substitution of fecal coliform for total coliform limits would be protective of the beneficial uses of the receiving water, the coliform effluent limitation will continue to be expressed as total coliform. Total coliform limits are:
 - i. The moving median value for the Most Probable Number (MPN) of total coliform bacteria in five (5) consecutive samples shall not exceed 23 MPN/100 ml; and,
 - ii. Any single sample shall not exceed 240 MPN/100 ml
- d) Effluent Limitation B.4 (BOD and TSS monthly average 85 percent removal): These are standard secondary treatment requirements based on Basin Plan requirements (Table 4-2, pg. 4-69), derived from federal requirements (40 CFR 133.102; definition in 133.101).

3. Basis for Receiving Water Limitations

- a) Receiving water limitations C.1, C.2, and C.3 (conditions to be avoided): These limits are based on the narrative/numerical objectives contained in Chapter 3 of the Basin Plan, page 3-2 – 3-5.
- b) Receiving water limitation C.4 (compliance with State Law): This requirement ensures compliance with Federal and State law, and is self-explanatory.

4. Basis for Sludge Management Practices

These requirements are based on Table 4.1 of the Basin Plan and 40 CFR 503.

5. Basis for Provisions

- a) Provisions E.1. (Order Compliance): Time of compliance is based on 40 CFR 122.

- b) Provision E.2 (Operations and Maintenance Manual): This provision is based on the Basin Plan, and requirements of 40 CFR 122.
- c) Provision E.3 (Contingency Plan): The Contingency Plan provision is based on the requirements stipulated in Board Resolution No. 74-10.
- d) Provision E.4 (Pollution Prevention): The Pollution Prevention provision is based on BPJ. This is to ensure that the discharge does not contain priority pollutants at levels where there is a potential for San Pablo Bay to be adversely affected.
- e) Provision E.5 (Self-Monitoring Program): The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the Self Monitoring Program (SMP) of the Permit. This provision requires compliance with the SMP, and is based on 40 CFR 122.44(i), 122.62, 122.63 and 124.5. The SMP is a standard requirement in almost all NPDES permits issued by the Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Board's policies. The SMP also contains a sampling program specific for the wastewater treatment plant. It defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified.
- f) Provision E.6 (Standard Provisions and Reporting Requirements): The purpose of this provision is require compliance with the standard provisions and reporting requirements given in this Board's document titled *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (the Standard Provisions), or any amendments thereafter. That document is incorporated in the permit as an attachment to it. Where provisions or reporting requirements specified in the permit are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the permit specifications shall apply. The standard provisions and reporting requirements given in the above document are based on various state and federal regulations with specific references cited therein.
- g) Provision E.7 (Change in Control or Ownership): This provision is based on 40 CFR 122.61.
- h) Provision E.8 (Order Reopener): This provision is based on 40 CFR 123.
- i) Provision E.9 (NPDES Permit /U.S. EPA concurrence): This provision is based on 40 CFR 123.
- j) Provision E.10 (Order Expiration and Reapplication): This provision is based on 40 CFR 122.46(a).

V. WASTE DISCHARGE REQUIREMENT APPEALS

Any person may petition the State Water Resources Control Board to review the decision of the Board regarding the Waste Discharge Requirements. A petition must be made within 30 days of the Board public hearing.